

## DOCUMENT RESUME

ED 234 325

CG 016 919

AUTHOR Woog, Pierre  
TITLE Unitary Operations: The Relationship between Level of Moral Development and Analytic Style.  
PUB DATE Mar 82  
NOTE 17p.; Paper presented at the Annual Meeting of the American Educational Research Association (66th, New York, NY, March 19-23, 1982).  
AVAILABLE FROM Project for Research in Nursing, Adelphi University School of Nursing, Garden City, NY 11530 (\$2.00 per copy, \$1.00 for 2 or more copies).  
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)  
EDRS PRICE MF01/PC01 Plus Postage.  
DESCRIPTORS \*Age Differences; \*Cognitive Style; \*Developmental Stages; Graduate Students; \*Helping Relationship; Higher Education; Interpersonal Competence; \*Moral Development; Predictor Variables  
IDENTIFIERS \*Analytic Interactive Style; \*Unitary Theory

## ABSTRACT

Despite the relevance of moral development to professional education, little research has been done to examine the application of moral development theory. To relate Analytic Interactive Style to post-formal operational thinking or "unitary operations thinking," to test the relationship between level of moral development and Analytic Interactive Style, and to examine whether this relationship is mediated by age, the Edwards' Situational Preference Inventory (SPI), Analytic Scale, and the Defining Issues Test (DIT) were administered to 62 graduate students, ranging in age from 23 to 59. The results supported the hypothesis of a significant relationship between level of moral development and Analytic Interactive Style. Furthermore, age was not found to be a mediator variable. The findings also support the interrelationship of moral development, "flexibility-reaching out," and helper effectiveness, and provide indirect evidence of the importance of holistic thinking as an explanatory theoretical underpinning. (JAC)

\*\*\*\*\*  
\* Reproductions supplied by EDRS are the best that can be made \*  
\* from the original document. \*  
\*\*\*\*\*

ED0234325

UNITARY OPERATIONS: THE RELATIONSHIP BETWEEN  
LEVEL OF MORAL DEVELOPMENT AND ANALYTIC STYLE\*

U.S. DEPARTMENT OF EDUCATION  
NATIONAL INSTITUTE OF EDUCATION  
EDUCATIONAL RESOURCES INFORMATION  
CENTER (ERIC)

X This document has been reproduced as  
received from the person or organization  
originating it.  
Minor changes have been made to improve  
reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Pierre Woog, Ph.D.  
Adelphi University  
Garden City, New York

"PERMISSION TO REPRODUCE THIS  
MATERIAL HAS BEEN GRANTED BY

*Pierre Woog*

TO THE EDUCATIONAL RESOURCES  
INFORMATION CENTER (ERIC)."

Presented at the American Educational Research Association Meeting,  
March, 1982, New York City, New York

\*Appeared in Adelphi University School of Nursing Project for Research  
in Nursing's, PRN: The Adelphi Report, 1980-81, pps. 200-213.

CE016919

# ABSTRACT

This study hypothesized a significant relationship between level of moral development and Analytic Interactive Style serving as a proxy measure of Unitary Operations, a stage of thought beyond Piaget's formal operations. It was hypothesized, furthermore, that this relationship would not be affected by age. The sample consisted of 84 graduate students ranging in age from 22-59. The resultant correlation was .40,  $p < .01$ . When age was partialled out,  $r$  was .39,  $p < .01$ . Educational implications related to helper effectiveness are stated.

UNITARY OPERATIONS: THE RELATIONSHIP BETWEEN  
LEVEL OF MORAL DEVELOPMENT AND ANALYTIC STYLE

Pierre Woog, Ph.D.

The study reported herein derives from a long-standing research interest in person constructs that relate to helper effectiveness. Previously reported research (Woog, 1979) has set the stage for this current study by making three points. First, effectiveness, as measured from a number of stances including helpee states and productivity, supervisors' ratings and colleagues' ratings, and congruence of beliefs and practice, can be predicted by the degree of Analytic Interactive Style as measured by Edwards' Situational Preference Inventory (SPI) (Edwards, 1973). Second, Analytic Interactive Style and effectiveness can be changed in a positive direction (Woog, 1979; Aspy, 1976, 1978). Third, the measure of Analytic style using the SPI is an efficient and direct measure of effectiveness: the measure takes 10 minutes to administer, is free of charge, can be hand scored in 2 minutes, and is factorially related to other constructs, such as Theoretical Orientation and Complexity from the Omnibus Personality Inventory (Heist & Yonge, 1968) and Creative Motivation (Torrance, 1965). Zero order correlations among these variables in a study of 99 mental health professionals were all found to be greater than .46 at  $p < .01$ . Furthermore, these variables taken together were found to have factor loadings of: Analytic Interactive style, .78; theoretical orientation, .79; complexity, .78; and creative motivation, .71. The factor was named, "flexibility--reaching out," (Hyman & Woog, Note 1).

The current study extends the previous research in three distinct ways. First, it is an attempt to relate Analytic Interactive style to post formal operational thinking, so called "Unitary Operations thinking" (Koplowitz, 1978). Second, it is an attempt to examine whether there is a relationship

between level of moral development and Analytic Interactive style. And finally, it is an attempt to examine whether, if such a relationship exists, it is mediated by age. It is a modest study, a first try. It makes no pretense of generalizability due to the comparatively small convenience sample, 62 willing graduate students, and the lack of control of potentially important variables, such as sex. It is a beginning.

Koplowitz (1978) has theorized levels of cognitive development that transcend Piaget's formal operational stage. His fifth level, called Unitary Operations, is marked by conceptualization of reality as interrelationships, many and subtle, in a systems framework; it is synergistic in that the whole is always greater than the parts. He uses as metaphors both Einstein's theory of relativity and the study of family systems. His work is akin to wholistic concepts, personal knowledge (Polanyi, 1966), and qualitative analysis (Patton, 1980). Formal Operational thinking, on the other hand, is dominated by positivistic empiricism and reductionism. Its credo is the separation of the whole into parts and the separation of cause and effect (Woog, 1980).

Koplowitz (1978) keeps within the Piagetian conception in that each stage is developmental and immutable. The key tasks of each stage, such as conservation for concrete operational and formal logic for formal operational, must be mastered. The mechanisms of change toward higher stages are assimilation and accommodation. Each stage defines the person's inquiry and communication. As such, cross stage communication can be most difficult. This difficulty in communication where Unitary Operations is concerned is further exacerbated by the nature of our language, which tends to be at the formal operational stage. Koplowitz (1978) captures this when he states:

There is difficulty in describing Unitary Operational thought which does not hamper description of pre-Unitary Operational thought. Language is a Formal Operational tool...Nouns and adjectives are conceptually similar to Formal Operational objects and variables. It is therefore impossible to give a clear description of the transcendence of the concepts of object and variable using language based on those concepts. (p. 33)

Kohlberg's (1971) theory of moral development is akin to that of Piaget's in that it is based upon an increase in cognitive complexity; it is hierarchal. Both Piaget and Kohlberg move from a prescientific hedonist level (Piaget's egocentric preoperational, Kohlberg's Stage 2) to an instrumental--relativist, rules dominated orientation (Piaget's concrete operations stage, Kohlberg's Stage 4) and on to a law and order, rational science or social contract legalistic orientation (Piaget's formal operations, Kohlberg's Stage 5). Piaget stops there, but it is theorized that Kohlberg's Stage 6; the Universal-Ethical Principle Orientation marked by personal knowledge and abstractness is related to Koplowitz's Unitary Operations. Both have a quality of transcendence.

Briefly, a case has been made for relating Kohlberg's highest level of moral development with Koplowitz's highest level of cognitive development. Further, it is asserted that cognitive complexity, or the factor, "flexibility--reaching out," is related to or leads to Unitary Operations. There is no direct evidence of this relationship due to a current lack of precise measurement, but this line of thinking concludes with the hypothesis that moral development and Analytic Interactive Style are positively related, the theoretical rationale being that as one approaches Unitary Operational thinking, one is more analytic and moral.

Finally, the variable of age must be examined. There is little argument as to level of cognitive and moral development being related to age

prior to adulthood. In fact, the theoretical conceptions of both Piaget and Kohlberg arose from their developmental work with children (Rest, 1974; Rosen, 1977). What is in doubt is whether the developmental unfolding is age-related after adulthood. Writings by Jacques (1974) and Maslow (1970) would support such a position, but there is no clarity. Furthermore, the variable of cohort when studying adults' age-related phenomena, becomes paramount. For example, in one empirical study of psychological development over age, Hyman (Note 2) found no evidence of a direct relationship.

Two most important studies in the field of health directly support the hypothesis of the relationship of moral development and effectiveness. One study used a direct measure of effectiveness, and the other used a measure of critical thinking that, by inference, can be used as a proxy for effectiveness based upon Woog (1979). In addition, both studies operationally defined level of moral development by the use of the "P" score derived from Rest's (1976) Defining Issues Test (DIT). This operational definition of moral development was also used in this current study.

Sheehan et al. (1980), in a study entitled "Moral Judgment as a Predictor of Clinical Performance," related moral reasoning, or level of moral development, to patient clinical skills of 217 pediatric house officers with a resultant correlation of .57,  $p < .001$ . In their discussion section the authors state:

The results firmly support the hypothesis that moral reasoning is a predictor of clinical performance. The association between moral reasoning and clinical performance shows up consistently across many approaches to the data and cannot be attributed to differences between American and foreign medical graduates.

The nature of the relationship suggests that high moral reasoning virtually excludes the possibility of poor performance. In addition, it appears that the very highest level of clinical performance is rarely achieved by those at the lowest level of moral thought. (p. 402)

Ketefian (1981), in a study entitled "Critical Thinking, Educational Preparation and Development of Moral Judgment," found that the correlation between 79 practicing nurses' level of moral development and critical thinking was .53,  $p < .001$ .

In the discussion Ketefian states:

The findings are consistent with existing theory and with the scant empirical data found in the literature on moral development research. Most research in this area has dealt with children and adolescents; only a few studies utilized young adults. The relevance of moral development to professional education of all types is evident in today's post-Watergate social climate. Yet little research examines the application of moral development theory in the preparation of professionals. (p.102)

#### Method

##### Instruments

Edwards' Situational Preference Inventory (SPI), Analytic Scale. The SPI consists of 22 sets of three statements in forced choice format. Each set of statements contains three choices, each representing a different style of social interaction: Cooperational, Instrumental, or Analytic. Subjects are asked to indicate which of the three statements they most agree with and which they least agree with. A score of +2 is assigned to the item most agreed with, a +1 to the item neither most nor least agreed with, and a zero to the item least agreed with. Only the SPI's Analytic interaction scale was of interest in this study. Analytic interaction is "represented by a tendency to deal with people and situations through an understanding of situational and interpersonal cues and through exploration of other than existing or normative courses of action" (Edwards, 1973).

Reliability. Six-week test-retest reliability for 13 male and 22 female college students is reported by Edwards (1973) as .804. Six-month test-retest reliabilities for two groups of nursing home personnel studied by

Wooq and Pidal (Note 3) were .748 ( $N = 19$ ) and .744 ( $N = 11$ , with a combined  $r$  for both groups of .739.

Validity. Selected correlates reported by Edwards (1973) for the Analytic scale are reported in Table 1.

Table 1  
Selected Correlates of the Analytic Scale

|                                                      | Male        | Female              | Both sexes   |
|------------------------------------------------------|-------------|---------------------|--------------|
| National League of Nursing Psychiatric Practice Exam |             | .440** (37)         |              |
| CPI, Psych. Mindedness                               |             | .498** (37 nurses)  |              |
| EPPS Introspection                                   |             | .333* (37 nurses)   |              |
| EPPS Order                                           |             | -.439** (37)        |              |
| Adheres to procedures (instructor rating)            |             | -.417** (37 nurses) |              |
| Social science major                                 | .251**      |                     |              |
| Self-styled aetheists                                | .244**      |                     |              |
| Asch conformity                                      |             |                     | -.430** (27) |
| Leff Liberalism                                      |             |                     | .250** (159) |
| Mach V                                               | .481** (43) |                     |              |

Note: Numbers in parentheses are sample sizes

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

Analytic scores of psychiatrists and T-group members at the onset of self-analytic groups were the highest found in any population; the population scoring lowest on the Analytic scale consisted of American Indians.

In a study relating childhood rearing practices to adult Analytic style, Edwards (1973) found that Analytic males appeared to come from homes using spanking less often ( $\underline{r} = .48$ ). Analytic females were minimally restricted regarding noise ( $\underline{r} = .48$ ,  $p < .01$ ), neatness ( $\underline{r} = .34$ ,  $p < .05$ ), and conformity ( $\underline{r} = .49$ ,  $p < .01$ ).

Insight users of marijuana, who approach marijuana use with expectations of expanded awareness and 87% of whom reported expanded awareness, received the highest scores ever recorded on the Analytic scale (Edwards, 1973).

In a study of 348 women, Analytic style was associated with preferences for role autonomy, the title, "Ms.," the right to sexual experimentation, a responsible career, and interest in experimentation with alternative lifestyles and marriage structure (Edwards, 1973).

Defining Issues Test (DIT). The DIT measures the moral judgment development of an individual. In this 6-story measure, subjects are asked to consider various moral dilemmas. Subjects are then asked to rate and rank items relative to their importance in making a judgment about the given moral dilemma (Rest, 1979).

Administration. The DIT is not a speeded test, usually 50-60 minutes being adequate time for all subjects to finish. There are important points to be made in giving instructions to subjects regarding the taking of the test. The measure, however, is heavily dependent on reading skills and should not be given to those whose reading level is below ninth grade. The

test may also be problematic for those whose first language is not English. The test can be given to a large group, on a one-to-one basis, or may be taken home if specific guidelines are given.

Validity. Given the supposition that moral judgment develops with age and maturity, four carefully chosen groups were tested with the DIT to see if it reflected the hypothesized variability in average scores. Each group was made up of 40 subjects: junior high school students (age 14); senior high school students (age 17-18); college juniors and seniors; and graduate students, 25 of whom were seminarians and 15 of whom were doctoral students in political science and moral philosophy. Scores for stages 2, 3, and 4 decreased with the more advanced groups, and the principled (P)-level scores (the sum of scores for stages 5 and 6) showed the clearest differentiation between the groups. One-way analysis of variance on P scores across the four groups gave an F value significant beyond the .01 level (Rest, 1974b, p. 5-1). Also, since the construct measured by the DIT is developmental, one would assume that it would correlate with age. Using data from 16 additional samples involving 1,500 subjects of different age groups, Rest (1974, pp. 5-2 to 5-5) showed a correlation between age and DIT; higher scores were reported for groups thought to be at advanced developmental levels. Using Kohlberg's scale and the DIT, 47 subjects were tested for their responses, with a resultant correlation of .58.

Reliability. To insure subject reliability (subjects who are not sufficiently motivated may give misleading information), two internal checks are recommended in scoring: an "M" score analysis and a 3-part consistency check of subjects' ratings/rankings. It is typical to lose 5-15% of subjects due to reliability checks. Test-retest studies by Davison and Robbins (1978) concluded that test-retest reliabilities for P & D scores are

generally in the high .70's and .80's, while reliabilities for the stage scores are in the .50's and .60's. Chronbach's alpha was used as a measure of internal consistency with results of .77 for P and .79 for the D index.

Sample. Eighty-four graduate level students were administered the SPI and DIT in five classroom settings. Students were enrolled in education master's programs in the areas of Special Education, Elementary and Secondary Education, and Adult Development and Learning. Included were 66 women and 18 men. Ages ranged from 22 to 59. In all cases the order of instruments was randomized in order to control for fatigue and for the possibility of response to one instrument affecting response to the other. All instruments were administered anonymously. In order to be able to correlate responses from both instruments, students were asked to create fictional names. The number of subjects dropped from the original 84 to 62 due to incomplete responses (6) and internal consistency checks (16). The final sample included 9 men and 53 women.

#### Findings

Table 2, Descriptive Data, reports the means and standard deviations for age, Analytic Interactive Style, and the P score of the DIT.

Table 2  
Descriptive Data

| Variable       | Mean  | Standard Deviation |
|----------------|-------|--------------------|
| Age            | 33.9  | 9.18               |
| Analytic Style | 26.58 | 4.58               |
| P score of DIT | 42.95 | 12.8               |

Zero order correlations among the variables were:

- Analytic Style and P score on DIT   .40\*
- Analytic Style and age                   -.14
- Age and DIT P score                    -.20

The resultant partial correlation between Analytic Style and DIT P score when age was partialled out was .38\*.

\* $p < .01$

The findings support the hypothesis of a significant relationship between level of moral development and Analytic Interactive style. Furthermore, age was not found to be a mediator variable.

#### Discussion

This preliminary study, conceived within the framework of Unitary Operational thinking, confirms the studies of Sheehan et al. (1980) and Ketefian (1981). It increases support for the interrelationship of moral development, "flexibility--reaching out," and helper effectiveness. It also brings indirect evidence of the importance of wholistic thinking as an explanatory theoretical underpinning. Studies in this area, however, are thus far correlational in nature; further studies using level of moral development, and/or measures of "flexibility--reaching out" need to be conducted. The direction is clear. If we want to have a maximum salutary effect upon our

students-clients-patients, one way certainly is to reach for higher levels of thinking.

Another series of studies needs to be done wherein fewer subjects must be eliminated due to incomplete or unreliable responses. Rest (1979) mentions a 5 to 15 percent loss. In this study the loss was 26 percent. The result is not only a loss in sample size, but it may directly affect the results by truncating the variability of moral development scores. Page and Bodi (1980) have developed a new measure of moral development, the Ethical Reasoning Inventory (ERI). The claim is made that not only is the ERI more valid and reliable, but it does not result in a loss of subjects, as does the DIT. The implication is that this study be replicated using the ERI rather than the DIT. It is also suggested that in such a replication larger and better defined samples be used and that other possible relevant variables, e.g., presage variables be introduced.

Reference Notes

1. Hyman, R. & Woog, P. A factor analytic study of measures pertinent to helper effectiveness (NIMH Grant #NIMH 5T5MH14181). Unpublished manuscript, 1977. (Available from author, Adelphi University School of Nursing, Garden City, NY 11530).
2. Hyman, R. The relationship of inner-direction and time-competence to four stages of adulthood in a sample of women in the mental health professions. Unpublished dissertation, Hofstra University, 1977.
3. Woog, P. & Pidal, J. Evaluation report of the National Institute of Mental Health #HSM-42-72-218, training project on mental health in nursing homes, 1973-1974. Hempstead, NY: Hofstra University, Department of Counseling, Psychology, and Research in Education, 1974.

### References

- Aspy, D. N. & Hicks, H. (Eds.). Research on humanistic objectives. Humanistic education: Objectives and assessment. Washington, DC: Association for Supervision and Curriculum Development, 1978.
- Aspy, D. N. & Roebuck, F. N. A level long enough. Washington, DC: The National Consortium for Humanizing Education, 1976.
- Davison, M. L. & Robbins, S. The reliability and validity of objective indices of moral development. Applied Psychological Measurement, 1978, 2(3), 391-403.
- Edwards, C. N. Interactive styles and social adaptation. Genetic Psychology Monographs, 1973, 87, 123-1740.
- Heist, P. & Yonge, G. Omnibus personality inventory: Manual. New York: The Psychological Corporation, 1968.
- Jacques, E. Death and the mid-life crisis. International Journal of Psychoanalysis, 1965, 45, 502-514.
- Ketefian, S. Critical thinking, education preparation and development of moral judgment among selected groups of practicing nurses. Nursing Research, 1981, 30(2), 98-103.
- Kohlberg, L. From is to ought: How to commit the naturalistic fallacy and get away with it in the study of moral development. In T. Mischel (Ed.), Cognitive development and epistemology. New York: Academic Press, 1971.
- Koplowitz, H. Unitary operations: A projection beyond Piaget's formal operations stage. Amherst: University of Massachusetts Center on Humanistic Education, 1978.
- Maslow, A. H. Motivation and personality. New York: Harper & Row, 1970.
- Page, J. & Bode, J. Comparison of measures of moral reasoning and development of a new objective measure. Educational and Psychological Measurement, 1980, 40, 317-329.
- Patton, M. O. Qualitative evaluation methods. Beverly Hills: Sage Publications, 1980.
- Polanyi, M. The tacit dimension. Garden City, NY: Doubleday, 1966.
- Rest, J. Manual for the Defining Issues Test: An objective test of moral judgment development. Minneapolis: Minnesota Moral Research Projects, 1974.

- Rest, J. New approaches in the assessment of moral judgment. In T. Licksona (Ed.), Moral development and behavior. New York: Holt, Rinehart, Winston, 1976.
- Rest, J. Revised manual for the Defining Issues Test: An objective test for moral judgment development. Minneapolis: Minnesota Moral Research Project, 1979.
- Rosen, J. Pathway to Piaget. Cherry Hill, NJ: Post Graduate International, 1977.
- Sheehan, T. J., Husted, S. D. R., Candee, D., Cook, C. D., & Bargen, M. Moral judgment as a predictor of clinical performance. Evaluation and the Health Professions, 1980, 3(4), 393-404.
- Torrance, E. P. Rewarding creative behavior. Englewood Cliffs, NJ: Prentice Hall, Inc., 1965.
- Woog, P. The IKE model of evaluation. CEDR Quarterly, 1980, 13(4), 16-20.
- Woog, P. The relationship between helper effectiveness and analytic interactive style. PRN: The Adelphi Report, 1977-1978. Garden City, NY: Project for Research in Nursing, Adelphi University School of Nursing, 1979.